WHAT IS CLAIMED IS:

1. A multi-chamber load-locking device for transferring wafers between a first-pressure area and a second-pressure area, said device having an interior divided into (i) an upper chamber and (ii) a lower chamber, both of which are for transferring wafers at the second pressure, and (iii) an intermediate section located between the upper chamber and the lower chamber, which is for loading/unloading wafers at the first pressure, said device comprising a divider plate having an upper side and a lower side, both of which are for temporarily supporting wafers, said plate moving reciprocally between an upper position and a lower position, wherein

when the plate is at the upper position, the plate divides and seals the upper chamber from the intermediate section and the lower chamber, wherein the upper chamber is at the second pressure while the intermediate section and the lower chamber are at the first pressure, whereby wafers at the upper side of the plate are transferred between the first-pressure area and the second-pressure area via the upper chamber, and

when the plate is at the lower position, the plate divides and seals the lower chamber from the intermediate section and the upper chamber, wherein the lower chamber is at the second pressure while the intermediate section and the upper chamber are at the first pressure, whereby wafers at the lower side of the plate are transferred between the first-pressure area and the second-pressure area via the lower chamber,

said device further comprising:

a cylindrical cam structure co-axially connected to said plate, wherein said plate moves between the first position and the second position by rotation of the cylindrical cam structure; and

a rotary actuator for rotating the cylindrical cam structure.

2. The device as claimed in Claim 1, wherein said cam structure comprises a cam cylinder having a cam groove which rotates with the rotary actuator, and a support cylinder having a cam follower which support cylinder is attached to the plate and does not rotate, wherein the cam follower is fitted in the cam groove and moves vertically when the cam groove rotates, said support cylinder being provided inside or outside the cam cylinder.

3. The device as claimed in Claim 2, wherein the cam groove has a shape threaded into five sections constituted by (I) an upper horizontal section for locking the plate at the upper position, (II) a lower horizontal section for locking the plate at the lower position, (III) a an intermediate section for moving the plate at a predetermined rate, (IV) an upper transition section for connecting the upper horizontal section and the intermediate section, and (V) a lower transition section for connecting the lower horizontal section and the intermediate section,

wherein the moving speed of the plate decreases immediately before sealing the upper chamber and the lower chamber with the plate when the cam follower is in the upper transition section and the lower transition section, respectively; the plate is locked upon sealing the upper chamber and the lower chamber when the cam follower is in the upper horizontal section and the lower horizontal section, respectively; and the plate moves vertically at a rate when the cam follower is in the intermediate section.

4. The device as claimed in Claim 2, further comprising a vertical beam provided in parallel to the axis of the cam cylinder, and a sliding support which is affixed to the support cylinder and slides on the beam when the support cylinder moves vertically.

5. The device as claimed in Claim 1, wherein each of the upper chamber and the lower chamber has a sealing surface where the upper chamber and the lower chamber are sealed with the plate, said sealing surface being formed by an O-ring.

6. The device as claimed in Claim 1, wherein the first pressure is an atmospheric pressure, and the second pressure is a reduced pressure.

7. The device as claimed in Claim 1, which is adapted to be disposed between a loading station which places a wafer cassette accommodating semiconductor wafers, and a transfer chamber which conveys the semiconductor wafers, wherein the intermediate section is connected to the loading station, and the upper chamber and the lower chamber are connected to the transfer chamber.

8. In a multi-chamber load-locking device which is placed between a loading station which places a wafer cassette which houses semiconductor wafers, and a transfer chamber which conveys said semiconductor wafers, and in which lock-loading

device chamber space is divided into two chambers by the vertical motion of a plate which contacts air-tightly a sealing surface of each of the two chambers,

wherein the improvement comprises a cylindrical cam provided with the same axis as that of said chamber; and a rotary actuator dynamically connected with said cylindrical cam, wherein the turning moment of said rotary actuator is converted into the vertical thrust of said axis and said plate rises and descends.

9. The improvement as claimed in Claim 8, wherein the cam has a groove threaded so that the moving speed decreases immediately before the plate contacts said sealing surface and said plate is locked in a state of rest when it contacts the sealing surface.

10. The improvement as claimed in Claim 8, wherein the sealing surface is an O-ring.